

REMARKS

CLAIMS 1, 2, 7-10, & 12-17

In the Office Action, claims 1, 2, 7-10, and 12-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Su et al. (U.S. Patent No. 5,418,717, hereinafter Su) in view of Cohen et al. (U.S. Patent Publication No. 2004/0220892, hereinafter Cohen) and in further view of Deligne et al. (U.S. Patent No. 6,314,399, hereinafter Deligne). Claims 5 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Su in view of Cohen and Deligne and in further view of Komori et al. (U.S. Patent No. 6,662,159, hereinafter Komori). Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Su in view of Cohen and Deligne and in further view of Hansen et al. (U.S. Patent Publication No. 2003/0014399, hereinafter Hansen). Claims 15-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Su in view of Cohen and Deligne and in further view of Sumita et al. (U.S. Patent No. 5,907,841, hereinafter Sumita).

Independent claim 1 provides a method of identifying a semantic structure from a text. The method includes identifying two semantic entities from a first portion of the text. A processor then searches a table using the two semantic entities to locate an entry that lists all entities that connect the two semantic entities to form a semantic structure. The processor forms a candidate semantic structure, wherein the candidate semantic structure comprises a parent semantic entity taken from the entry of the table. The parent semantic entity was not identified from the text and the two semantic entities identified from the text are child semantic entities of the parent semantic entity in the candidate semantic structure. A semantic score for the candidate semantic structure is generated based on the probability of a child semantic entity given a parent semantic entity in the candidate semantic structure. A penalty factor is applied to the semantic score because the parent semantic entity was not identified from the text. A transition score for the candidate semantic structure is generated by generating a separate transition probability for each pair of semantic entities that appear on a same level in the candidate semantic structure wherein generating a transition probability comprises dividing a count of the number of times the pair of semantic entities appear in a particular order on the same level in training data by a count of the number of times the pair of semantic entities appear on the same level in the training data. A syntactic score for the candidate semantic structure is generated based in part on the position of a word in the text and the position in the semantic structure of a semantic entity formed from the word. The syntactic score,

the transition score, and the semantic score are combined to form a combined score for the candidate semantic structure. The candidate semantic structure is not pruned from further consideration based on the combined score. The parent semantic entity is identified from a second portion of the text. The penalty factor is removed from the semantic score for the candidate semantic structure because the parent semantic entity has been identified from the text. The syntactic score, the transition score, and the semantic score with the penalty factor removed are combined to form a new combined score for the candidate semantic structure. The candidate semantic structure is not pruned from further consideration based on the new combined score.

Claim 1 is not shown or suggested in any of the combinations of cited references. In particular, none of the cited references show or suggest applying a penalty factor to a semantic score for a candidate semantic structure because an entity in the semantic structure was not identified from a first portion of text, identifying the entity from a second portion of text, and removing the penalty factor from the semantic score because the semantic entity had been identified from the text.

In the Office Action, column 3, lines 54-64 and FIG. 5 of Komori were cited as applying a penalty factor to discount a probability of a semantic entity if the semantic entity was not identified from the text. Applicants respectfully dispute this assertion.

In Komori, speech recognition is performed on a speech signal. Because not all words of a language have been trained for the speech recognition system, Komori provides for the recognition of an "unknown" or garbage word. To perform its recognition, Komori applies the speech signal to HMM states of known words. At each frame, Komori selects the state that provides the highest probability to generate a score for the "unknown" word. This score is formed by discounting the probability computed for the highest probability state by .92. If no known word has a higher score than the score generated for the "unknown" word, the recognition system will return an indication that an unknown word was spoken by the user.

Note that the penalty factor is not applied to a probability of a semantic entity that was not identified from text. Instead, it is applied to a highest probability HMM state given a speech signal. Komori does not identify semantic entities from text, but instead identifies text from a speech signal.

Further, Komori does not show or suggest removing a penalty factor that has been applied to a score after identifying a semantic entity from a second portion of text. In Komori, the penalty

factor is consistently applied to form the score for the unknown word. Komori does not describe any situation in which the penalty factor would be removed for the unknown word.

Since none of the cited art show or suggest applying a penalty factor to a semantic score for a candidate semantic structure because an entity in the semantic structure was not identified from a first portion of text, identifying the entity from a second portion of text, and removing the penalty factor from the semantic score because the semantic entity had been identified from the text, claim 1 and claims 2, 7-10 and 12-17, which depend therefrom, are patentable over the cited art.

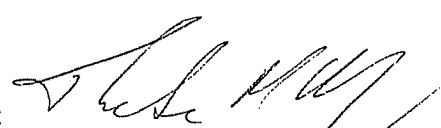
CONCLUSION

In light of the above remarks, claims 1, 2, 7-10, and 12-17 are in form for allowance. Reconsideration and allowance of the claims is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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